



ONLINE GROCERY RECOMMENDATION SYSTEM

Mr. Rutwik Deshmukh, Mr. Yogeshwarram Godara, Mr. Sanket Nehate, Mr. Kalpesh Patil
Prof. Madhuri Kumbhar

Department of Computer Engineering
Pimpri Chinchwad College of Engineering and Research, Ravet, Pune, SPPU

Abstract: The goal of recommendation systems is to predict a user's preference or rating for a particular item. The problem of making personalized recommendations about items or information during a user's visit to a website can be solved by applying knowledge discovery techniques. A collaborative filtering algorithm provides recommendations based on the ratings of other users in the system. Scalability, sparsity, and cold start are issues faced by traditional collaborative filtering algorithms. A combination of item-based collaborative filtering and demographics-based user clusters is used in the proposed framework for predicting user behavior. It is scalable and addresses user cold start.

Index Terms – Grocery shopping recommendation, Popularity-based performance evaluation.

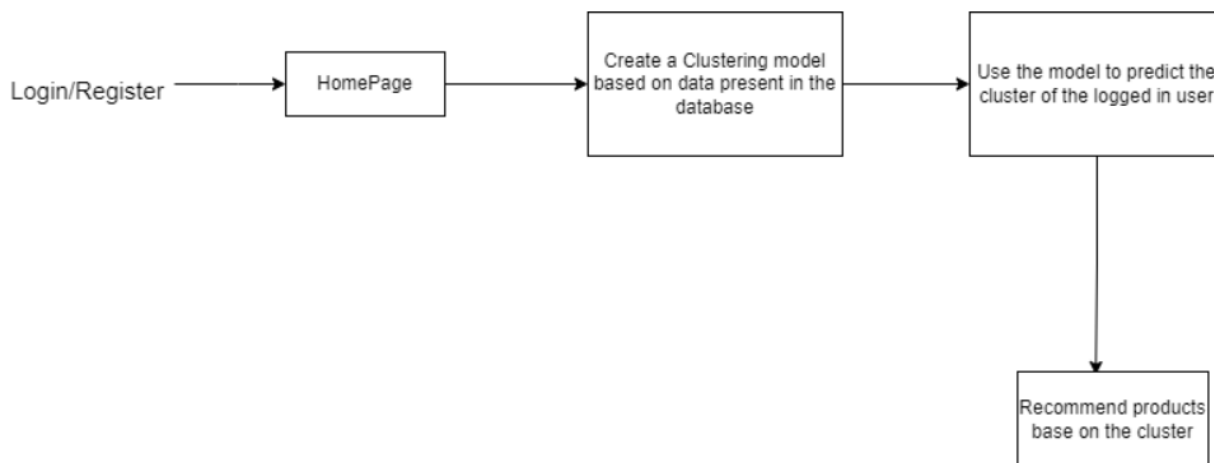
I. INTRODUCTION

"Which soap should I purchase?", "Which snacks should I eat?", "Which brand of rice should I buy?" - These are a few examples for which we frequently seek advice from our loved ones and friends. Almost every one of us has experienced that despite their best intentions, those friendly suggestions aren't always effective because others' taste doesn't necessarily coincide with ours. These suggestions may often also be biased. There are more anomalous options as well, such as being an expert in decision science and trying out complex theories, scurrying through the internet and spending hours looking through confusing reviews and suggestions, or just listening to our inner voice. There is a problem in that it is very difficult to give a precise suggestion of what might interest us. When we need to make a decision, a personal advisor would be of great assistance in suggesting the best option. A recommender system (RS) exists in the form of a web application.

II. PROBLEM STATEMENT

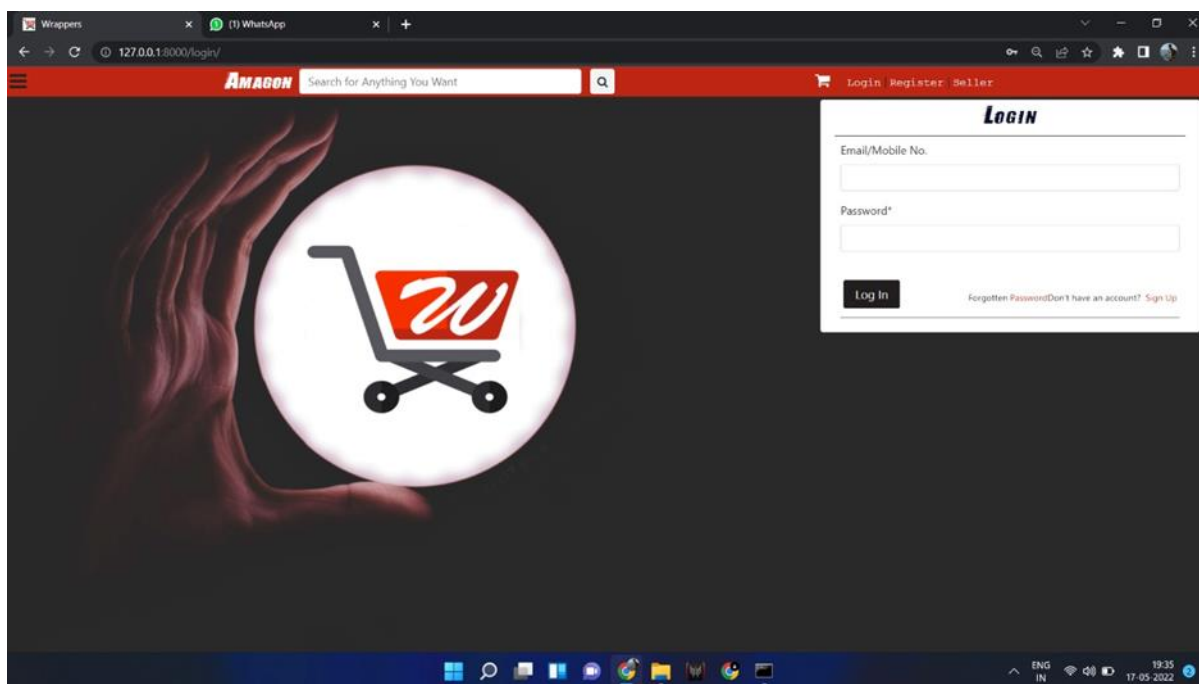
The purpose of this project is to introduce the concept and the idea behind creating a grocery shopping site. This grocery shopping website will analyze the data of customers based on their activities and recommend products using a machine learning model based on user activity. This also includes talking about some of the challenges that need to be overcome after implementing machine learning models.

III. PROPOSED DESIGNED



IV. APPROACH

A. Sign in/ Register: In this step the user can register himself by creating an account using his mail id or can login to the website to if already registered. Once the user is successfully registered, he/she is added to the “users” database and a unique user id is assigned to the user.

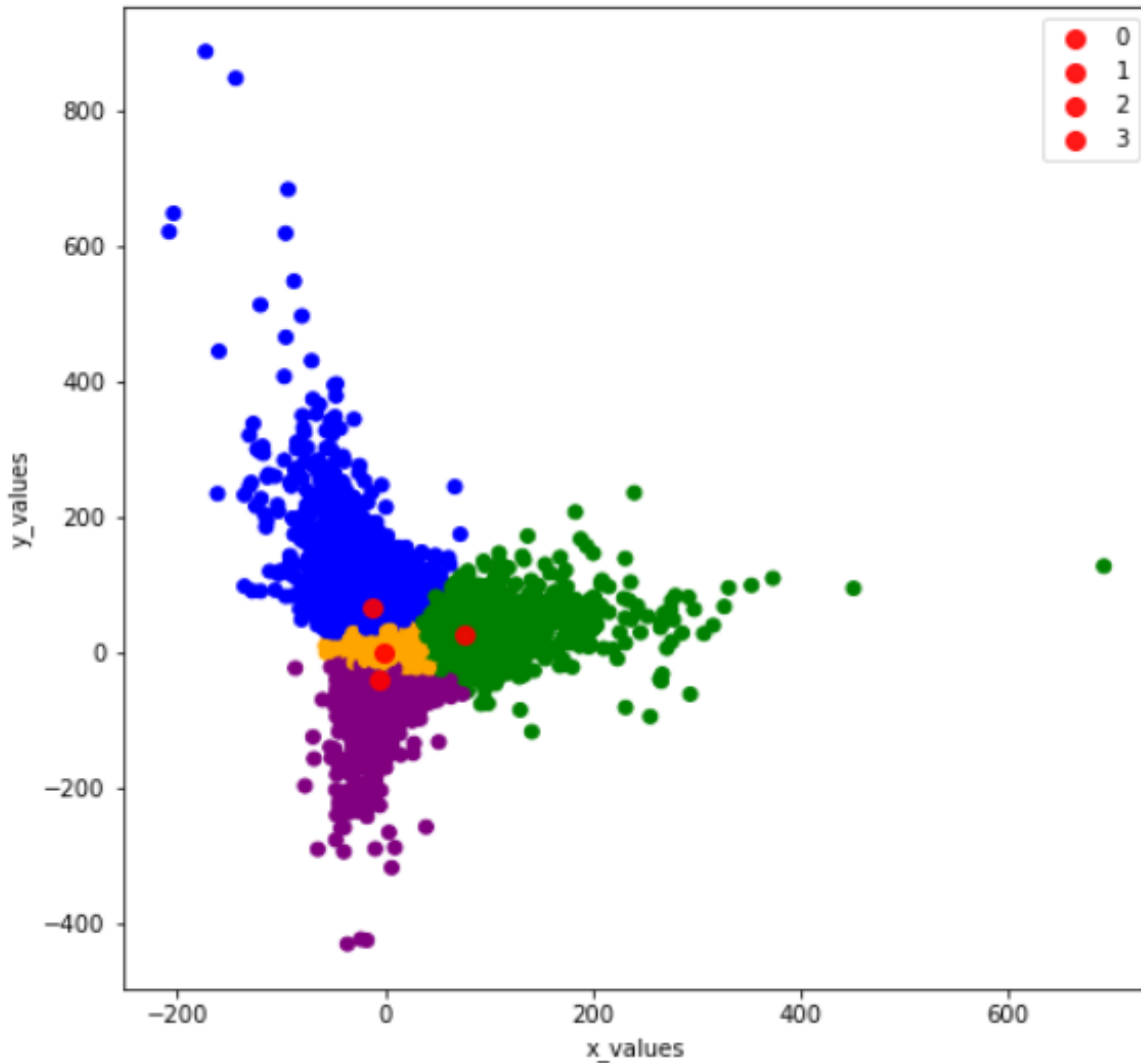


B. Find Recommendations for the logged in user:

After successful login, a user is landed on the “HomePage” of the website where he/she can see a list of products. The website contains a several lists. Every list has a different label attached to it. For example: A “Trending Products” list would include all the trending products. A “Recommendations Products” list would include all the products which are recommended to a particular user based on the ML algorithm. We’ve used a KMeans algorithm for creating clusters for customers, and based upon the cluster, users are recommended products.

C. Algorithm:

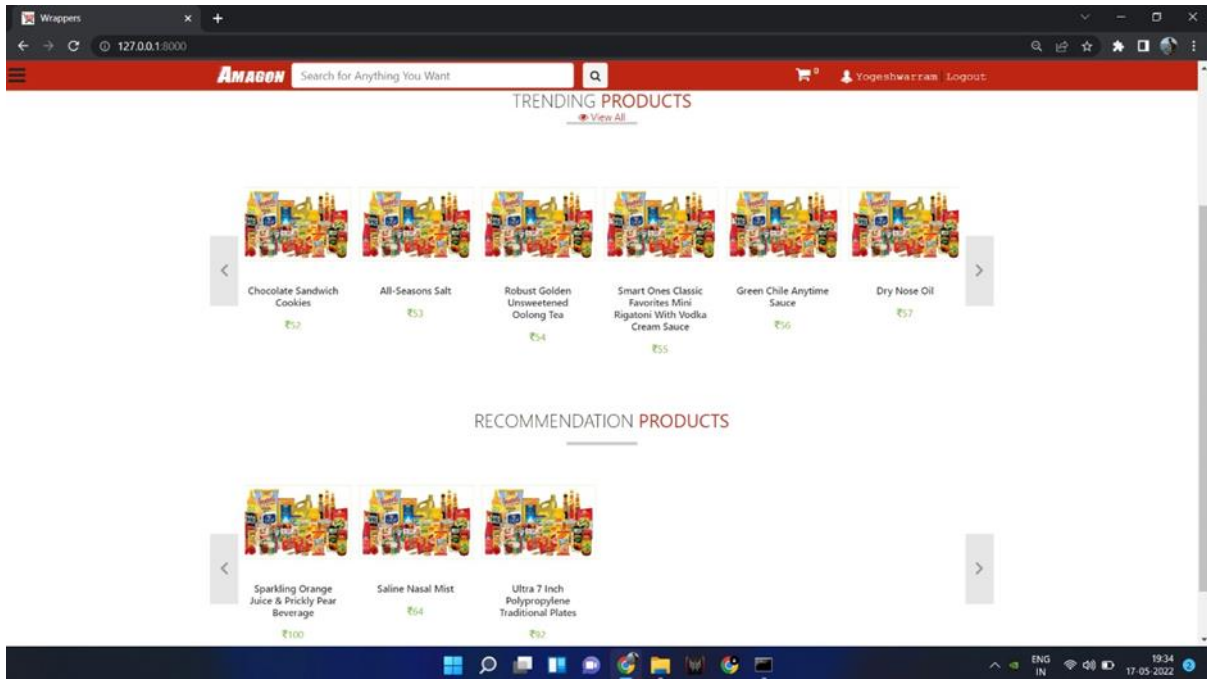
For implementing the recommendations, we've used a KMeans Clustering algorithm. The model is trained on the purchase history of users, their age and gender details. The algorithm identifies purchase patterns of the users and create clusters accordingly. For every cluster, we can find the list of products which the users are most likely to buy. Hence products are suggested using this list.



The above fig shows how different customers will be differentiated based on their taste in products. We'll use the clusters to recommend the products.

D. Display Recommendations:

Once the Recommendations are decided, they're displayed on the Homepage. Here's a screenshot showing how the recommendations are displayed.



V. CONCLUSION

The proposed Grocery Shopping Website is recommending grocery to the customers using a PCA and KMeans clustering algorithm. The clusters are getting created based on the product purchase history, age and gender of the customers. The sole purpose of this system is that it would enable the businesses to recommend products to customers that they would most likely search/buy on their next visit on the website.

VI. REFERENCES

- [1] An Item-based Collaborative Filtering Recommendation Algorithm Using Slope One Scheme Smoothing, DeJia Zhang, Wenzhou Vocational and Technical College, Wenzhou 325035, China, 2009
- [2] Web-Page Recommendation Based on Web Usage and Domain Knowledge Thi Thanh Sang Nguyen, Hai Yan Lu, and Jie Lu, IEEE TRANSACTIONS ON KNOWLEDGE AND DATA ENGINEERING, VOL. 26, NO. 10, OCTOBER 2014
- [3] S. Ahmed, P. Ko, J.-W. Kim, Y.-K. Kim, and S. Kang, An Enhanced Recommendation Technique for Personalised Ecommerce Portal, Proceedings of the Second International Symposium on Intelligent Information Technology Application, pages 196-200, December 2008.
- [4] G. M. Allenby, R. Leone, and L. Jen, A Dynamic Model of Purchase Timing with Application to Direct Marketing, Journal of the American Statistical Association, pages 365-374, June 1999.
- [5] Y. B. Cho, Y. H. Cho, and S. H. Kim Mining Changes in Customer Buying Behaviour for Collaborative Online Grocery Recommendation System (IJSRD/Vol. 4/Issue 04/2016/081)
All rights reserved by www.ijcrt.com 321 Recommendations, Expert Systems with Applications, 28(2):359-369, February 2005.
- [6] Y. H. Cho and J. K. Kim, Application of Web Usage Mining and Product Taxonomy to Collaborative Recommendations in E-commerce, Expert Systems with Applications, 26(2):233246, February 2004.